

Trying 9158046...Open

box200> enter system id

Logging in to Dialog

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* * * F237 will will be remove from DIALOG 09/30/97.* *

SYSTEM:OS - DIALOG OneSearch

File 434:Scisearch(R) Cited Ref Sci 1974-1997/Sep W3

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File 5:BIOSIS PREVIEWS(R) 1969-1997/Sep W4

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File 654:US PAT.FULL. 1990-1997/Sep 23

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File 76:Life Sciences Collection 1982-1997/Aug

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File 144:Pascal 1973-1997/Aug

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*File 144: Changes in Alert pricing. Please see HELP NEWS 144.

File 156:Toxline(R) 1965-1997/Sep

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File 6:NTIS 64-1997/Oct W4

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*File 6: Pricing change--please see HELP NEWS6 or HELP RATES6

File 53:FOODLINE(R): Food Science & Technology 1972-1997/Oct 01

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*File 53: Monthly Alerts now available. Pricing changes--see HELP NEWS53 or HELP RATES53. Thesaurus now available!

File 62:SPIN(R) 1975-1997/Sep B2

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File 334:Material Safety Label Data - OHS 1997/Q2

(c) 1997 MDL Info Systems

File 16:IAC PROMT(R) 1972-1997/Oct 01

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Set Items Description

? set hi ;set hi

Hilight option is not available in file(s) 6
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Set	Items	Description
S1	347	(BACTERIA? ? OR BACTERIUM OR VIRUS OR VIRUSES OR FUNGUS OR FUNGI OR MICROORGANISM? ?) (25N) (RAMAN AND (DETECT? OR DETERMIN?))
S2	260	RD (unique items)

? t s2/7/28,47,63,86,126,140,144

2/7/28 (Item 28 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

14537581 Genuine Article#: TW173 Number of References: 7
Title: DAIRY PRODUCT ANALYSIS - IDENTIFICATION OF **MICROORGANISMS** BY MIDINFRARED SPECTROSCOPY AND **DETERMINATION** OF CONSTITUENTS BY **RAMAN-SPECTROSCOPY**
Author(s): FEHRMANN A; FRANZ M; HOFFMANN A; RUDZIK L; WUST E
Corporate Source: MILCHWIRTSCHAFTLICHE LEHR & UNTERSUCHUNGSANSTALT, HEISTERBERGALLEE 12/D-30453 HANNOVER//GERMANY//; FACHHSCH HANOVER/D-30453 HANNOVER//GERMANY/
Journal: JOURNAL OF AOAC INTERNATIONAL, 1995, V78, N6 (NOV-DEC), P1537-1542
ISSN: 1060-3271
Language: ENGLISH Document Type: ARTICLE
Abstract: Identification of microorganisms by traditional microbiological methods is time consuming. The German Federal Health Office has developed a method using mid-infrared spectroscopy to identify microorganisms rapidly. This method has been modified for application to microorganisms important in the dairy industry. Mid- and near-infrared spectroscopies are well-established methods for quantitative measurements of fat, protein, lactose, and solid content in a variety of products. A disadvantage of both methods is the huge absorption due to water; extraction of other components is complicated and can be achieved only statistically. With Raman spectroscopy, water causes less absorption. We investigated the use of Raman spectroscopy as a quantitative method for milk powder.

2/7/47 (Item 47 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

13280219 Genuine Article#: PC129 Number of References: 23
Title: FOURIER-TRANSFORM **RAMAN-SPECTROSCOPY** OF **BACTERIAL-CELL WALLS**
Author(s): WILLIAMS AC; EDWARDS HGM
Corporate Source: UNIV BRADFORD, SCH PHARM, POSTGRAD STUDIES PHARMACEUT TECHNOL/BRADFORD BD7 1DP/W YORKSHIRE/ENGLAND/
Journal: JOURNAL OF RAMAN SPECTROSCOPY, 1994, V25, N7-8 (JUL-AUG), P673-677
ISSN: 0377-0486
Language: ENGLISH Document Type: ARTICLE

Abstract: Fourier transform **Raman** spectra were obtained from viable colonies of **bacteria**. Despite the highly coloured nature of the samples, the spectra were of sufficient quality to allow comprehensive assignments consistent with the vibrational modes. The spectra showed no clear evidence for the presence of phospholipids, indicating that penetration of the exciting infrared radiation was limited to the outermost components of the bacterial cell walls. The data describing the molecular and conformational state of the bacterial cell wall may aid in probing the modes of action of a wide range of antimicrobial agent.

2/7/63 (Item 63 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

12698808 Genuine Article#: MG624 Number of References: 61
Title: ULTRAVIOLET MICRO-**RAMAN** SPECTROGRAPH FOR THE **DETECTION**
OF SMALL NUMBERS OF **BACTERIAL**-CELLS
Author(s): CHADHA S; NELSON WH; SPERRY JF
Corporate Source: UNIV RHODE ISL,DEPT CHEM/KINGSTON//RI/02881; UNIV RHODE
ISL,DEPT CHEM/KINGSTON//RI/02881; UNIV RHODE ISL,DEPT
MICROBIOL/KINGSTON//RI/02881
Journal: REVIEW OF SCIENTIFIC INSTRUMENTS, 1993, V64, N11 (NOV), P3088-3093
ISSN: 0034-6748
Language: ENGLISH Document Type: ARTICLE

Abstract: The construction of a practical UV micro-**Raman** spectrograph capable of selective excitation of **bacterial** cells and other microscopic samples has been described. A reflective objective is used to focus cw laser light on a sample and at the same time collect the scattered light at 180-degrees. With the aid of a quartz lens the image produced is focused on the slits of a spectrograph equipped with a single 2400 grooves/mm grating optimized for 250 nm. Spectra were detected by means of a blue-intensified diode array detector. Resonance Raman spectra of *Bacillus subtilis* and *Flavobacterium capsulatum* excited by the 257.2 nm output of a cw laser were recorded in the 900-1800 cm⁻¹ region. Bacterial cells were immobilized on a quartz plate by means of polylysine and were counted visually. Cooling was required to retard sample degradation. Sample sizes ranged from 1 to 50 cells with excitation times varying from 15 to 180 s. Excellent spectra have been obtained from 20 cells in 15 s using a spectrograph having only 3% throughput.

2/7/86 (Item 86 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

11423547 Genuine Article#: HH366 Number of References: 77
Title: MODELING OF STRUCTURE AND FUNCTION OF PROTEINS AND NUCLEIC-ACIDS
Author(s): PLOCHOCKA D; RABCZENKO A
Corporate Source: POLISH ACAD SCI,INST BIOCHEM & BIOPHYS,RAKOWIECKA
36/PL-02532 WARSAW//POLAND/
Journal: ACTA BIOCHIMICA POLONICA, 1991, V38, N3, P281-293
Language: ENGLISH Document Type: REVIEW

Abstract: The native conformation of a linear biopolymer is, under physiological conditions, exclusively determined by the sequence of the side chains. The task of predicting the native structure on the sequence basis remains unsolved. In this paper we present our attempts to describe and predict conformations of biopolymers undertaken at the

*Institute of Biochemistry and Biophysics, Polish Academy of Sciences in Warsaw in collaboration with groups of W. Saenger (Freie Universitat Berlin, F.R.G.) and S. Neidle (Institute of Cancer Research, Sutton, U.K.).

The investigations, reviewed below, carried out in recent years by our group (A. Rabczenko, P. Herzyk, D. Plochocka, J. Wiorkiewicz-Kuczera, P. Zielenkiewicz) resulted in the creation and accumulation of software allowing theoretical description of nucleic acids and proteins.

2/7/126 (Item 126 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

07891245 Genuine Article#: F9823 Number of References: 12
Title: THE RESONANCE **RAMAN** MICROPROBE **DETECTION** OF SINGLE
BACTERIAL-CELLS FROM A CHROMOBACTERIAL MIXTURE
Author(s): DALTERIO RA; BAEK M; NELSON WH; BRITT D; SPERRY JF; PURCELL FJ
Corporate Source: UNIV RHODE ISL,DEPT CHEM/KINGSTON//RI/02881; UNIV RHODE
ISL,DEPT MICROBIOL/KINGSTON//RI/02881; SPEX IND INC/EDISON//NJ/08820
Journal: APPLIED SPECTROSCOPY, 1987, V41, N2, P241-244
Language: ENGLISH Document Type: ARTICLE

2/7/140 (Item 140 from file: 434)
DIALOG(R)File 434:Scisearch(R) Cited Ref Sci
(c) 1997 Inst for Sci Info. All rts. reserv.

03129052 Genuine Article#: JB464 Number of References: 24
Title: RESONANCE **RAMAN** METHOD FOR THE RAPID **DETECTION** AND
IDENTIFICATION OF **BACTERIA** IN WATER
Author(s): HOWARD WF; NELSON WH; SPERRY JF
Corporate Source: UNIV RHODE ISL,DEPT CHEM/KINGSTON//RI/02881; UNIV RHODE
ISL,DEPT MICROBIOL/KINGSTON//RI/02881
✓ Journal: APPLIED SPECTROSCOPY, 1980, V34, N1, P72-75
Language: ENGLISH Document Type: ARTICLE

2/7/144 (Item 4 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)
(c) 1997 BIOSIS. All rts. reserv.

12031519 BIOSIS Number: 98631519
Dairy product analysis: Identification of **microorganisms** by
mid-infrared spectroscopy and **determination** of constituents by
raman spectroscopy
✓ Fehrmann A; Franz M; Hoffmann A; Rudzik L; Wuest E
Milchwirtschaftliche Lehr- Untersuchungsanstalt, Fachhochschule Hannover
Heisterbergallee 12, 30453 Hanover, Germany
Journal of AOAC International 78 (6). 1995. 1537-1542.
Full Journal Title: Journal of AOAC International
ISSN: 1060-3271
Language: ENGLISH
Print Number: Biological Abstracts Vol. 101 Iss. 004 Ref. 047264
Identification of microorganisms by traditional microbiological methods
is time consuming. The German Federal Health Office has developed a method
using mid-infrared spectroscopy to identify microorganisms rapidly. This
method has been modified for application to microorganisms important in the

dairy industry. Mid- and near-infrared spectroscopies are well-established methods for quantitative measurements of fat, protein, lactose, and solid content in a variety of products. A disadvantage of both methods is the huge absorption due to water; extraction of other components is complicated and can be achieved only statistically. With Raman spectroscopy, water causes less absorption. We investigated the use of Raman spectroscopy as a quantitative method for milk powder.

? t s2/pn,ti,ab/174,178,180,186,192,193,204

>>>Some display codes not found in file 434: PN
>>>Some display codes not found in file 73: PN
>>>Some display codes not found in file 156: PN
>>>Some display codes not found in file 6: PN
>>>Some display codes not found in file 62: PN
>>>No matching display code(s) found in file(s): 334

2/PN,TI,AB/174 (Item 4 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

PURIFICATION OF INDUSTRIAL LUBRICATING AGENTS

PATENT NO.: 5,611,919
ISSUED: March 18, 1997 (19970318)

ABSTRACT

Use of polymeric two-phase systems for removing microbial contaminants from industrial lubricating agents, a method of purifying microbial contaminated lubricating agents by mixing the lubricating agent with a polymeric two-phase system, allowing the mixture to separate so as to form a top-phase containing the lubricating agent and a bottom-phase containing at least part of the microbial contaminants, and separating at least a major part of the microbially enriched bottom-phase from the top-phase, a plant for microbial purification of lubricating agents comprising a mixing tank (4) having means (7, 8) for feeding microbially contaminated lubricating agent (S) to the mixing tank, means (13) for feeding a polymeric two-phase system to the mixing tank, a stirrer (5) in the mixing tank, means (9, 10) for feeding the mixture to a separation device (6) for separating the mixture into a top-phase (T) containing lubricating agents, and a bottom-phase (B) containing microbial contaminants, and means (18) for recovering the top-phase of the two-phase system, and a lubricating agent concentrate, in which at least part of the lubricating agent at the same time forms part of the top-phase component of the polymeric two-phase system.

2/PN,TI,AB/178 (Item 8 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

METHODS FOR MAKING A DEVICE FOR CONCURRENTLY PROCESSING MULTIPLE BIOLOGICAL CHIP ASSAYS

PATENT NO.: 5,545,531
ISSUED: August 13, 1996 (19960813)

ABSTRACT

Methods for concurrently processing multiple biological chip assays by

providing a biological chip plate comprising a plurality of test wells, each test well having a biological chip having a molecular probe array; introducing samples into the test wells; subjecting the biological chip plate to manipulation by a fluid handling device that automatically performs steps to carry out reactions between target molecules in the samples and probes; and subjecting the biological chip plate to a biological chip plate reader that interrogates the probe arrays to detect any reactions between target molecules and probes.

2/PN,TI,AB/180 (Item 10 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

METHOD AND APPARATUS FOR SUSPENDING MICROPARTICLES

PATENT NO.: 5,532,140
ISSUED: July 02, 1996 (19960702)

ABSTRACT

A device and method is described for joining two or more small particles to form a composite levitated particle. The size of the particles joined may be in the range 0.1 micrometer to 30 micrometers. The device utilizes a linear quadrupole electrodynamic levitator with storage rings at right angles to the levitating electrodes. The storage rings move the charged particles to desired positions with DC electric fields. Particles with different sign but unequal charge are then joined by means of displacements caused by the DC fields of the storage rings. The initial particles and the final composite particle are retained free of any contact with substrate in the levitating fields of the linear levitator.

2/PN,TI,AB/186 (Item 16 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

ANALYTICAL SYSTEM USEFUL IN DIAGNOSIS OF THE CONDITION OF A DISEASE

PATENT NO.: 5,470,534
ISSUED: November 28, 1995 (19951128)

ABSTRACT

In a first measurement stage, reaction solutions of samples are optically measured by a biochemical analyzer, and the measurement result of the analysis item which is an index of the disease status regarding the samples is compared with the check index. This check index is stored in memory beforehand. When the measurement result corresponds to the check index, the sample processing goes to a second measurement stage for measuring a specific item. In the second measurement stage, the sample is measured by an immuno-assay apparatus or a nucleic acid analyzer, and the measurement result is outputted.

2/PN,TI,AB/192 (Item 22 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

METHOD FOR THE DIAGNOSIS OF VIRULENT BACTERIA

PATENT NO.: 5,380,648
ISSUED: January 10, 1995 (19950110)

ABSTRACT

Induction of virulence related proteins in virulent pathogenic E. coli and Shigella by growing such bacteria in the presence of Congo Red as induction triggering factor, and the application of the induction for purposes of diagnosing virulent pathogens and their antibiotic sensitivity.

2/PN,TI,AB/193 (Item 23 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

PURIFICATION OF INDUSTRIAL LUBRICATING AGENTS

PATENT NO.: 5,308,503
ISSUED: May 03, 1994 (19940503)

ABSTRACT

Use of polymeric two-phase systems for removing microbial contaminants from industrial lubricating agents, a method of purifying microbial contaminated lubricating agents by mixing the lubricating agent with a polymeric two-phase system, allowing the mixture to separate so as to form a top-phase containing the lubricating agent and a bottom-phase containing at least part of the microbial contaminants, and separating at least a major part of the microbially enriched bottom-phase from the top-phase, a plant for microbial purification of lubricating agents comprising a mixing tank (4) having means (7, 8) for feeding microbially contaminated lubricating agent (S) to the mixing tank, means (13) for feeding a polymeric two-phase system to the mixing tank, a stirrer (5) in the mixing tank, means (9, 10) for feeding the mixture to a separation device (6) for separating the mixture into a top-phase (T) containing lubricating agents, and a bottom-phase (B) containing microbial contaminants, and means (18) for recovering the top-phase of the two-phase system, and a lubricating agent concentrate, in which at least part of the lubricating agent at the same time forms part of the top-phase component of the polymeric two-phase system.

2/PN,TI,AB/204 (Item 34 from file: 654)
DIALOG(R)File 654:(c) format only 1997 Knight-Ridder Info. All rts. reserv.

METHODS OF DISCRIMINATING BETWEEN CONTAMINATED AND UNCONTAMINATED CONTAINERS

PATENT NO.: 5,067,616
ISSUED: November 26, 1991 (19911126)

ABSTRACT

Methods of discriminating between contaminated and uncontaminated containers prior to washing is disclosed characterized by the testing of the residue of the container to determine if the residue is residue of the original product packed in the container. If the residue is not sufficiently similar to the original product, the container is rejected as

contaminated.

? t s2/7/218,222,229,232,236,239

2/7/218 (Item 9 from file: 73)
DIALOG(R)File 73:EMBASE
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642935 EMBASE No: 77019998
Identification of **bacterial**, normal and tumour mammalian cells by
laser **Raman** spectroscopy
Webb S.J.; Stoneham M.E.; Montgomery J.
Dept. Phys., Univ. South Florida, Tampa, Fla. 33620 USA
IRCS MED.SCI.BIOMED.TECH. (ENGLAND) , 1976, 4/1-2 (8-9) CODEN: IMSBD
LANGUAGES: ENGLISH
Based on evidence that different genera of cells absorb specific infrared
and microwave frequencies, laser Raman spectroscopy was suggested as a
possible new method for the rapid identification of living cells. Now the
coat proteins of two closely related strains of bacteriophage have been
differentiated, and tumour cells in Pap smears apparently detected, by
their respective laser Raman spectra.

2/7/222 (Item 4 from file: 76)
DIALOG(R)File 76:Life Sciences Collection
(c) 1997 Cambridge Sci Abs. All rts. reserv.

01254225 2001683
Detection and identification of **bacteria** by means of
ultra-violet excited resonance **Raman** spectroscopy.
Nelson, W.H.; Dalterio, R.A.; Sperry, J.F.
Board of Governors, State of Rhode Island, Providence, RI (USA)
PATENT NUMBER: US Patent 4,847,198
PATENT CLASSIFICATION: US Cl. 435-34 Int. Cl. C12Q 1/04; C12Q C12N 13/00,
G01J 3/44
(1989.)
DOCUMENT TYPE: Patent LANGUAGE: ENGLISH
SUBFILE: Microbiology Abstracts Section A: Industrial and Applied
Microbiology

The authors describe a method for the identification of a bacterium
which comprises: exciting taxonomic markers in a **bacterium** with a
beam of ultraviolet energy, some of said energy emitted from the
bacterium as a lower resonance enhanced **Raman** back-scattered
energy collecting the resonance enhanced **Raman** back-scattered energy
substantially in the absence of fluorescence converting the resonance
enhanced **Raman** back-scattered energy into spectra which corresponds
to the taxonomic markers in said **bacterium** and displaying the
spectra whereby the **bacterium** may be identified.

2/7/229 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal
(c) 1997 INIST/CNRS. All rts. reserv.

11938664 PASCAL No.: 95-0117842
On the chemical detection of bioaerosols
Bioaerosols
SPURNY K R
HO Jim; GRIFFITHS W David

Journal: Journal of aerosol science, 1994, 25 (8) 1533-1547
ISSN: 0021-8502 CODEN: JALSB7 Availability: INIST-4439;
354000057714400090

No. of Refs.: 1 p.1/2

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United Kingdom

Language: English

Chemical methods for the detection of bioaerosols are relatively fast, sensitive and in many cases specific. Chromatographic methods, laser spectroscopical methods, fluorescence and luminescence spectroscopies, as well as infrared, Raman and mass spectroscopies are very useful tools for the identification of bioaerosols. The review deals with the description and critical evaluation of these methods and discusses the research needs and further developments

2/7/232 (Item 5 from file: 144)
DIALOG(R)File 144:Pascal
(c) 1997 INIST/CNRS. All rts. reserv.

10592355 PASCAL No.: 93-0101607
UV resonance **Raman** studies of **bacteria**
NELSON W H; MANOHARAN R; SPERRY J F
Univ. Rhode Island, dep. chemistry, Kingston RI, USA
Journal: Applied Spectroscopy Reviews, 1992, 27 (1) 67-124
ISSN: 0066-5541 CODEN: APSRBB Availability: INIST-13783;
354000021667840030

No. of Refs.: 146 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Language: English

2/7/236 (Item 2 from file: 156)
DIALOG(R)File 156:Toxline(R)
(c) format only 1997 Knight-Ridder Info. All rts. reserv.

03187796 Subfile: NTIS-PB80-138522

A Resonance **Raman** Method for the Rapid **Detection**,
Identification and Quantitation of **Bacteria** in Sewage and Natural
Waters

Nelson WH

Rhode Island Univ., Kingston. Dept. of Chemistry.

Source: Govt Reports Announcements & Index (GRA&I), Issue 10, 1980

Language: UNSPECIFIED

Spon. Agency: Office of Water Research and Technology, Washington, DC.

Contract Number: Proj. OWRT-B-078-RI

Order Info.: NTIS/PB80-138522, 21p NTIS Prices: PC A02/MF A01

TD3: Resonance **Raman** spectroscopy was used to rapidly identify and quantify chromogenic **bacteria** in water. A rapid and reliable method such as this would be a valuable tool for testing for bacterial contamination in public water supplies as the currently used coliform standards are time consuming and in many cases nonspecific. A series of carotene-containing **bacteria** were studied including *Agmanellum quadruplicatum*, *Coccochloris elabens*, and *Rhodopseudomonas palastris*. A standard Spex Model 1401 spectrometer with a photon counting **detection** system was used with incident light at 514.5 and 488.0 nm supplied by a Model CR-2 argon ion laser. Line intensities and energies are presented. Two intense bands were found for each **bacterial** spectrum. A substantial number of the **microorganisms** produced specific,

interpretable resonance **Raman** spectra. The spectra were simply obtained, of high quality, and are reproducible. The method will allow for the rapid identification of **microorganisms** in the presence of 'contaminants' such as sewage and water. Completion rept.

2/7/239 (Item 5 from file: 156)
DIALOG(R)File 156:Toxline(R)
(c) format only 1997 Knight-Ridder Info. All rts. reserv.

01299093 Subfile: NTIS-AD-A158 218-8
New Physical Methods for Biological Aerosol Detection.
Chou CC; Lu M
Systems and Applied Sciences Corp., Anaheim, CA.
Source: Govt Reports Announcements & Index (GRA&I), Issue 24, 1985
Language: UNSPECIFIED
Contract Number: Contract DAAK11-82-C-0113
Order Info.: NTIS/AD-A158 218/8, 99p NTIS Prices: PC A05/MF A01
TD3: For biological aerosol **detection**, Fourier transform secondary negative ion mass spectrometry appears to be on the forefront among various new analytical methods evaluated. Various gases liberated upon pyrolyzing **bacterial** cells lead to several possible techniques. Preliminary experimental results indicated an integrated **detection** system incorporating non-dispersive IR spectroscopy, piezoelectric sensing, and optical density change measurement would render a fast, accurate detection for pyrolysis gaseous products. Originator supplied keywords include: Fourier transform secondary, Negative ion cyclotron, Resonance mass spectrometry, Vaporization, Ionization, Pyrolysis, Fourier transform infrared spectroscopy (FT-IR), Surface enhanced Raman scattering spectroscopy (SERS), Piezoelectric sensing, Optical density change, Non-dispersive infrared spectroscopy, NH3, H2S. Contractor rept. Aug 82-Sep 84,
? t s2/5/242

2/5/242 (Item 2 from file: 6)
DIALOG(R)File 6:NTIS
Comp&dist 1997 NTIS, Intl Copyright All Rights Re. All rts. reserv.

1608966 NTIS Accession Number: AD-A249 811/1/XAB
Rapid Detection of Single Bacterial Cells by Deep UV Micro Raman Spectroscopy
(Final rept. 1 Oct 88-31 Dec 91)
Nelson, W. H. ; Sperry, J. F.
Rhode Island Univ., Kingston. Dept. of Chemistry.
Corp. Source Codes: 013987005; 410237
Sponsor: Army Research Office, Research Triangle Park, NC.
Report No.: ARO-25476.12-LS
1 Apr 92 20p
Languages: English
Journal Announcement: GRAI9216
NTIS Prices: PC A03/MF A01
Country of Publication: United States
Contract No.: DAAL03-88-K-0093

A specially-designed micro-Raman spectrograph capable of selectively exciting single bacterial cells has been constructed. Detection limits have been shown to be one bacterial cell. With modest redesign, but with no change in basic technology, sensitivity is sufficient to allow identification of single bacterial cells in a matter of seconds. Live bacteria were immobilized on glass slides by means of 0.1 M polylysine

solution. The wet sample was placed on a microscope stage adjusted to maintain a temperature of 0 C. The sample was illuminated by the CW 257 nm output of a Spectra Physics Model 395B argon ion laser cavity extender. Ten percent of the beam (less than 3 mw) was directed by a beam splitter down the microscope optical axis and focused onto a 5 micron spot on the sample. A Cassagrain objective focused the beam and collected the back-scattered resonance Raman light. The Raman-scattered light was analyzed using a Spex Triplemate equipped with a blue-sensitive EG and G OMAII optical multichannel analyzer which was able to obtain a spectrum in 16 microseconds.

Descriptors: Argon; *Bacteria; Cavities; Cells; Detection; Glass; Identification; Instrumentation; Ions; Laser cavities; Lasers; Light; Microscopes; Models; Multichannel; Output; Physics; *Raman spectra; Resonance; Sensitivity; Spectra; Spectrographs; Temperature

Identifiers: NTISDODXA; NTISDODA

Section Headings: 57K (Medicine and Biology--Microbiology); 99F (Chemistry--Physical and Theoretical Chemistry)
? t s2/7/243

2/7/243 (Item 3 from file: 6)
DIALOG(R)File 6:NTIS
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1334891 NTIS Accession Number: AD-A194 719/1/XAB

Rapid Detection of Bacteria and Other Microorganisms: A Basic Study in the Application of Resonance Raman and Time-Resolved Fluorescence Spectroscopies

(Rept. for 15 Oct 84-14 Feb 88)

Nelson, W. H.

Rhode Island Univ., Kingston. Dept. of Chemistry.

Corp. Source Codes: 013987005; 410237

Sponsor: Army Research Office, Research Triangle Park, NC.

Report No.: ARO-22367.11-LS

15 Apr 88 22p

Languages: English

Journal Announcement: GRAI8820

NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: DAAG29-85-K-0005

Resonance Raman Spectra have been obtained for a variety of chromobacteria using low power 488 nm excitation. Spectra are simple, of high quality, and useful for identification purposes at the species level. Raman microprobe studies show conclusively that spectra can be obtained from single cells in pure cultures or in mixed cultures without need for separation. Extensions of the study have been made to representative colorless gram-negative and gram-positive bacteria. Spora other than bacteria have been studied as well. Pollen, mold spores, bacterial spores, algae and viruses all give spectra but only viruses and bacterial spores appear to give intense UV Resonance Raman spectra. The primary fluorescence of bacteria has been studied in detail to determine its potential in rapid detection. We have determined fluorescence for *S. epidermidis*, *P. fluorescens*, *E. cloacae*, *E. coli* and *B. subtilis*. Fluorescence contributions have been assigned in part to tryptophan, pteridines, related flavins and pyridine coenzymes.

? t s2/7/246,247,252,253,254

2/7/246 (Item 6 from file: 6)
DIALOG(R)File 6:NTIS

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1128616 NTIS Accession Number: AD-A153 549/1/XAB

Basic Study to Assess the Potential Usefulness of Resonance Raman Spectroscopy as a Means of Rapidly Detecting and Identifying Bacteria and other Microorganisms

(Final rept. 1 Oct 83-31 Dec 84)

Nelson, W. H.

Rhode Island Univ., Kingston. Dept. of Chemistry.

Corp. Source Codes: 013987005; 410237

Sponsor: Army Research Office, Research Triangle Park, NC.

Report No.: ARO-20545.1-LS

15 Feb 85 15p

Languages: English

Journal Announcement: GRAI8516

NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: DAAG29-83-K-0136

This past year we have explored the potential uses of Resonance Raman and Fluorescence Lifetime Spectroscopies in the rapid characterization of bacteria. Previously we have shown that chromobacteria can be distinguished on the basis of distinctive resonance Raman spectra. Spectra are excited by low power argon ion laser radiation at 488 nm and are due to the presence of carotenoid pigments. While carotenoid pigments in bacteria generally are not useful for identification purposes, the study of chromobacteria has allowed us to assess the potential sensitivity of resonance Raman spectroscopy in this application. We were able to laser illuminate and count two types of bacteria under a microscope. Because it was possible to see the laser excited bacteria while the resonance Raman spectra were being obtained, it was possible to estimate closely the number of bacteria producing a given spectrum. Such high sensitivity suggests but does not prove that spectra are 'surface enhanced'. It is clear that the resonance Raman technique can be highly sensitive and our experiments suggest that remote detection and detection from mixtures is possible in principle.

2/7/247 (Item 7 from file: 6)

DIALOG(R)File 6:NTIS

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550639 NTIS Accession Number: PB-261 358/6

Laser Methods of Rapid Detection, Identification, and Quantitation of Human Enteric Viruses in Sewage and Rivers

(Final rept. 1 Jan 75-1 Sep 76)

Nelson, Wilfred H. ; Chang, Pei W.

Rhode Island Univ., Kingston.

Corp. Source Codes: 305500

Sponsor: Office of Water Research and Technology, Washington, D.C.

Report No.: W77-02184; OWRT-A-058-RI(1)

1 Sep 76 33p

Journal Announcement: GRAI7706

NTIS Prices: PC A03/MF A01

Contract No.: DI-14-34-0001-6041; OWRT-A-058-RI

This study has shown that it is possible to obtain Raman spectra of poliovirus in water solution. Since a Raman spectrum can be obtained in minutes or even seconds, in principle, it has been demonstrated that very rapid analysis of viruses is possible. Details of virus preparation, purification, and concentration have been discussed. Polio I spectra are similar to those of plant viruses studied previously, but are sufficiently different to allow spectra to be used for identification purposes. Problems

of instrument sensitivity and rapid sample preparation have to be overcome before a virus analysis machine based upon Raman spectroscopy can be used routinely.

2/7/252 (Item 3 from file: 53)
DIALOG(R)File 53:FOODLINE(R): Food Science & Technology
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00277622 FOODLINE ACCESSION NUMBER: 290616
Modern techniques for rapid microbiological analysis.
Nelson W H

263pp.

PUBLISHER: VCH Publishers, Weinheim

45.00 pounds

1991

ISBN NO: 3-527-28022-7

CLASSIFICATION: 576.8-52

LANGUAGE: English

DOCUMENT TYPE: Book

FOODLINE UPDATE CODE: 19920723

ABSTRACT: This book describes new techniques, and modifications to existing techniques, that can be applied to the rapid **detection**, identification and enumeration of **microorganisms**. Chapters deal with: identification of chemical markers for microbial differentiation and **detection** by gas chromatography/mass spectroscopy; rapid **detection** and identification of **microorganisms** via pyrolytic on-line derivatisation/gas chromatography/mass spectroscopy; the characterisation of **microorganisms** by Fourier-Transform IR spectroscopy; UV resonance **Raman** spectroscopic **detection** and identification of **bacteria** and other microorganisms; a polarisation-sensitive multiparameter light-scattering characterisation of **bacteria**; polarised light scattering as a means for **detecting** changes in microbial populations; multidimensional fluorescence identification of phytoplankton; and instrumentation and techniques for the rapid identification of **bacteria** using fluorescence lifetimes.

SECTION HEADING: OLD MATERIAL

2/7/253 (Item 4 from file: 53)
DIALOG(R)File 53:FOODLINE(R): Food Science & Technology
(c) 1997 LFRA. All rts. reserv.

00277600 FOODLINE ACCESSION NUMBER: 290593
UV Resonance **Raman** spectroscopic **detection** and identification of **bacteria** and other **microorganisms**.

Nelson W H; Sperry J F

Modern techniques for rapid microbiological analysis. 97-143 (125 ref.)

Nelson W H

PUBLISHER: VCH Publishers, Weinheim

1991

ISBN NO: 3-527-28022-7

CLASSIFICATION: 576.8-52

LANGUAGE: English

DOCUMENT TYPE: Book; Book chapter

FOODLINE UPDATE CODE: 19920722

ABSTRACT: Raman spectroscopy was first introduced over sixty years ago as a method for studying vibrations and rotations of small molecules, but was not widely used owing to a number of practical problems. Advances

in the last twenty-five years have widened the applications of this analytical technique. One major advance has come through the use of resonance **Raman** spectroscopy. This review describes the use of resonance **Raman**, particularly UV resonance **Raman**, spectroscopy for the **detection** and identification of **microorganisms**. Consideration is given to the theory and mechanism of **Raman** spectra; the properties of **bacterial** macromolecules such as proteins, purines, pyrimidines and nucleic acids; UV excitation of **bacterial** molecules; the effects of cultural conditions; **determination** of GC/AT ratios; and the study of **bacterial** spores, pollen and **viruses**. Figures showing the UV resonance spectra of **bacteria** include *Ps. fluorescens*, *E. cloacae*, *E. coli*, *S. epidermidis*, *P. mirabilis*, *Bacillus* sp. and cyanobacteria.

SECTION HEADING: MICROBIOLOGY

2/7/254 (Item 5 from file: 53)
DIALOG(R)File 53:FOODLINE(R): Food Science & Technology
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00274579 FOODLINE ACCESSION NUMBER: 287463
The identification, interactions and structure of **viruses** by
Raman spectroscopy.
Hartman K A; Thomas G J
Instrumental methods for rapid microbiological analysis. 91-134 (34 ref.)
Nelson W H
PUBLISHER: VCH Publishers, Deerfield Beach
CLASSIFICATION: 576.8.093-52
LANGUAGE: English
DOCUMENT TYPE: Book; Book chapter
FOODLINE UPDATE CODE: 19920610
SECTION HEADING: OLD MATERIAL
? t s2/7/257,260

2/7/257 (Item 2 from file: 62)
DIALOG(R)File 62:SPIN(R)
(c) 1997 American Institute of Physics. All rts. reserv.

00325452
An ultraviolet (242 nm excitation) resonance **Raman** study of live **bacteria** and **bacterial** components
Dalterio, R. A.; Nelson, W. H.; Britt, D.; Sperry, J. F.
Department of Chemistry (R.A.D., W.H.N.) and Department of Microbiology (D.B., J.F.S.), University of Rhode Island, Kingston, Rhode Island 02281
Appl. Spectrosc.; 41(3),417-421 (MAR. 1987) CODEN: APSPA
Work Type: EXPERIMENTAL
Ultraviolet-excited (242 nm) resonance **Raman** spectra have been obtained for the first time for five types of **bacteria**: *Escherichia coli*, *Pseudomonas fluorescens*, *Staphylococcus epidermidis*, *Bacillus subtilis*, and *Enterobacter cloacae*. Detailed, highly reproducible spectra show substantial differences in both the intensities and the energies of peaks, which suggests that such spectra provide unique 'fingerprints' reflecting the unique combinations of chemotaxonomic markers present in each type of organism. Many of the spectral features excited by 242-nm radiation probably arise from cellular RNA, DNA, and the amino acids tyrosine and tryptophan. Background fluorescence has been shown to be negligible.

2/7/260 (Item 2 from file: 16)
DIALOG(R)File 16:IAC PROMT(R)
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00504437

Bacteria in drinking water can be **detected** and quantified with
laser induced resonance **Raman** spectroscopy, according to chemist
WH Nelson of the U of Rhode Island.
Laser Focus September, 1979 p. 34,36

So far, Nelson has worked only with aqueous solutions containing known
species of bacteria.
? b 351

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\$13.14 Estimated cost File434
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\$0.06 0.001 Hrs File16

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 \$2.76 Estimated cost File16
 OneSearch, 12 files, 0.066 Hrs FileOS
 \$50.52 Estimated cost this search
 \$50.52 Estimated total session cost 0.066 Hrs.

File 351:DERWENT WPI 1963-1997/UD=9739;UP=9736;UM=9734

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*File 351: See HELP FAQ 351 for updated reload info. British Apps
 now faster - See HELP NEWS 351.

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S3	0	TI=DETECTION AND IDENTIFICATION OF BACTERIA - BY USING EMITTED LIGHT ENERGY, RESONANCE ENHANCED RAMAN SCATTERING TO PRODUCE CHARACTERISTIC SPECTRA
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	5068	SPECTRA
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4/TI/1
 DIALOG(R)File 351:(c)1997 Derwent Info Ltd. All rts. reserv.

Determining effectiveness of antibiotics against **bacteria** - e.g.
 using ultraviolet resonance **Raman** spectroscopy

4/TI/2
 DIALOG(R)File 351:(c)1997 Derwent Info Ltd. All rts. reserv.

Detection and identification of **bacteria** - by using emitted light energy, resonance enhanced **Raman** scattering to produce characteristic **spectra**
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4/6/1
009915814
WPI Acc No: 94-183524/199422
Determining effectiveness of antibiotics against **bacteria** - e.g.
using ultraviolet resonance **Raman** spectroscopy

4/6/2
007990618 **Image available**
WPI Acc No: 89-255730/198935
Detection and identification of **bacteria** - by using emitted light
energy, resonance enhanced **Raman** scattering to produce
characteristic **spectra**
? t s4/5/1,2

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DIALOG(R)File 351:DERWENT WPI
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009915814
WPI Acc No: 94-183524/199422
XRAM Acc No: C94-083226
XRPX Acc No: N94-144848
Determining effectiveness of antibiotics against **bacteria** - e.g.
using ultraviolet resonance **Raman** spectroscopy
Patent Assignee: RHODE ISLAND HIGHER EDUCATION (RHOD-N); NELSON W H
(NELS-I)

Inventor: NELSON W H
Number of Countries: 002 Number of Patents: 003
Patent Family:
Patent No Kind Date Applicat No Kind Date Main IPC Week
WO 9411526 A1 19940526 WO 93US11036 A 19931118 C12Q-001/18 199422 B
AU 9456066 A 19940608 AU 9456066 A 19931118 C12Q-001/18 199435
US 5573927 A 19961112 US 92977670 A 19921118 C12Q-001/18 199651

Priority Applications (No Type Date): US 92977670 A 19921118
Cited Patents: 6. journal ref.; US 4847198
Patent Details:

Patent	Kind	Lan	Pg	Filing	Notes	Application	Patent
WO 9411526	A1	E	19				
AU 9456066	A			Based on		WO 9411526	
US 5573927	A		4				

Abstract (Basic): WO 9411526 A

Determining the effectiveness of an antibiotic against a
bacteria comprises: (a) creating **spectra** of at least a
first set of cells of an initially cultured target **bacteria**; (b)
culturing the target cells of a second set in a growth medium which is
free of antibiotic; (c) displaying the **spectra** of the cells of
the second set prior to mitosis; (d) culturing the target cells of a
third set in a growth medium contg. an antibiotic of interest; (e)
displaying the **spectra** of the cells of a third set prior to
mitosis; and (f) comparing the **spectra** of the second and third
sets of **bacteria** to determine the effectiveness of the
antibiotic.

ADVANTAGE - The process is quicker than prior art processes.
Dwg.1/4

Derwent Class: B04; D16; S03
International Patent Class (Main): C12Q-001/18
International Patent Class (Additional): C12N-005/00; C12N-013/00;
C12Q-001/02; C12Q-001/04; G01J-003/44; G01N-021/00; G01N-033/48
File Segment: CPI; EPI
Manual Codes (CPI/A-N): B02-Z; B04-F10; B11-C07B2; B12-K04; D05-H
Manual Codes (EPI/S-X): S03-E04A5; S03-E14H9
Chemical Fragment Codes (M1):
01 M421 M424 M740 M750 M903 N102 Q233 V000
02 M423 M424 M740 M760 M903 N102 Q233 V500 V520
Chemical Fragment Codes (M6):
03 M903 P831 Q233 R514 R614 R633

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DIALOG(R)File 351:DERWENT WPI
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007990618 **Image available**
WPI Acc No: 89-255730/198935
XRAM Acc No: C89-113798
XRPX Acc No: N89-195146

Detection and identification of **bacteria** - by using emitted light
energy, resonance enhanced **Raman** scattering to produce
characteristic **spectra**

Patent Assignee: HIGHER EDUCATION RH (HIGH-N)
Inventor: DALTERIO R A; NELSON W H; SPERRY J F
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
US 4847198	A	19890711	US 86916214	A	19861007		198935 B

Priority Applications (No Type Date): US 86916214 A 19861007

Patent Details:

Patent	Kind	Lan	Pg	Filing Notes	Application	Patent
US 4847198	A		12			

Abstract (Basic): US 4847198 A

A method for the identification of a bacterium is claimed which comprises (a) exciting taxonomic markers in a bacterium with a beam of ultraviolet energy, some of the energy emitted from the bacterium as a low resonance enhanced **Raman** back scattered energy. (b) collecting the resonance enhanced **Raman** back scattered energy in the absence of fluorescence, (c) converting the resonance enhanced **Raman** back scattered energy into **spectra** which corresponds to the taxonomic markers in the bacterium and (d) displaying the **spectra** so that the bacterium may be identified.

ADVANTAGE - The **spectra** obtd. reflect the differences in the organisms which allow the organisms to be readily and rapidly identified.

Derwent Class: D16; J04; S03
International Patent Class (Additional): C12N-013/00; C12Q-001/04;
G01J-003/44
File Segment: CPI; EPI
Manual Codes (CPI/A-N): D05-H04; D05-H05; D05-H06; D05-H09; J04-B01A
Manual Codes (EPI/S-X): S03-A02B; S03-E14H
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